



SEQUENCE LISTING

<110> Fritig, Bernard
Toquin, Valerie
Geoffroy, Pierrette
Legrand, Michel
Kauffmann, Serge

<120> INDUCIBLE COMTII PROMOTER, CHIMERA GENE
CONTAINING SAME AND TRANSFORMED PLANTS

<130> A34638-PCT-USA

<140> US 09/937,204

<141> 2000-03-22

<150> PCT/FR99/03700

<151> 1999-03-22

<150> PCT/FR99/07646

<151> 1999-06-11

<160> 26

<170> FastSEQ for Windows Version 4.0

<210> 1

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<212> DNA

<213> Nicotiana tabacum

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<222> (667)...(672)

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<222> (820)...(830)

<223> Inverted L box

<221> enhancer

<222> (845)...(852)

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<222> (1034)...(1047)

<223> P box

<221> misc_signal

<222> (1221)...(1226)

<223> G box

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<222> (1343)...(1356)

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 <222> (1369)...(1374)
 <223> A box

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 <222> (1377)...(1382)
 <223> GT box

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 <222> (1681)...(1690)
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 <222> (1695)...(1699)

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 <222> (1735)...(1739)

 <221> misc_signal
 <222> (1772)...(0)
 <223> Transcription origin

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aagcactaac tcaactgtac atgattgtga agcctaacaa aaacactcta aaaggaaaag 1800
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atg
1863

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<221> intron
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<221> terminator
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agaaattgaa aaaagaaata ttctatttca ctattatggt aggtgcaact atatcatcac 180
catggaaaag ccggagtaaa aagagaacgt agaggagatt tcatgatttg attgagaata 240
taatataatta tttttttgta attccacaca aagattaaga aaatgatctg atcaatgatg 300
gctccgagga tttggctgtc gcgggaacta tgacattaat ataaatttgt cgctgcctat 360
aaagacccta tctatctatc tatctatcta tatatatata tatatatata tatatatata 420
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ttaaaaaatat ttataagtat atatgaaatt tttgacgaaa tttttgtgtg accgtgaccc 540
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| tactcttgtt | aaattgtcca | ggctccaaac | gcatgttcgt | ttcaatttta | acggatgttt | 1320 |
| ccgaacaact | ccaaatgttc | aatgttaggt | gtgtttggtg | ttaagcttcc | gtcctagggt | 1380 |
| aatagaatag | ataattgttg | tttcttatat | agttttgaac | aatcgtcgcc | ataaactaat | 1440 |
| ttttaggatg | gaagctaatt | tttaggatgg | agtacagcct | aaggttaaaa | tataactata | 1500 |
| aaaaatatcc | ataaaaagggtg | aaattttaatt | agtaacatga | aaagataaaa | ctagtgttat | 1560 |
| cgggtcaaact | ttcaaaagag | aaagaaataa | ctagacaaac | ttcaacaacc | aacctgcccc | 1620 |
| acatgctact | gtgcaattga | aaaataaaca | aaagagaacc | agacaatatt | tcaaccaata | 1680 |
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| actacgagaa | taattacact | acaactctta | tagctaattc | ttgtctcaag | attttcagct | 1860 |
| atggaatcct | caacccaaaag | ccaaatacca | acacaatcag | aagaagagcg | taactgcaca | 1920 |
| tatgccatgc | aactattgtc | atcttcagtc | ctcccccttg | tgttgcatte | aacaattcaa | 1980 |
| ttggaagttt | ttgagatatt | agccaaatct | aatgacacta | aactttctgc | ttctcaaatt | 2040 |
| gtttctcaaa | ttcctaactg | cacaaaacct | gaagcaccta | ctatgttaaa | taggatgctt | 2100 |
| tatgtcttgg | ctagtttact | cttgtttact | tgttccattg | ttgaagatga | aaaaataaat | 2160 |
| gggggccaaa | aaagagtgtg | tggtttgtca | caagtgggaa | aattctttgt | taaaaatgaa | 2220 |
| aatgggtgcat | caatggggcc | acttttggct | ttgcttcaaa | ataaagtatt | cataaacagc | 2280 |
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| tttcggattt | ttttccactc | accaaccaag | catgggaaaa | tagtgataaa | actactcatt | 4500 |
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<212> DNA

<213> *Nicotiana tabacum*

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<222> (1)...(1095)

<400> 3

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1 5 10 15

cgt aac tgc aca tat gcc atg caa cta ttg tca tct tca gtc ctc ccc 96
Arg Asn Cys Thr Tyr Ala Met Gln Leu Leu Ser Ser Ser Val Leu Pro
20 25 30

ttt gtg ttg cat tca aca att caa ttg gaa gtt ttt gag ata tta gcc 144
Phe Val Leu His Ser Thr Ile Gln Leu Glu Val Phe Glu Ile Leu Ala
35 40 45

aaa tct aat gac act aaa ctt tct gct tct caa att gtt tct caa att 192
Lys Ser Asn Asp Thr Lys Leu Ser Ala Ser Gln Ile Val Ser Gln Ile
50 55 60

cct aac tgc aca aaa cct gaa gca cct act atg tta aat agg atg ctt 240
Pro Asn Cys Thr Lys Pro Glu Ala Pro Thr Met Leu Asn Arg Met Leu
65 70 75 80

tat gtc ttg gct agt tac tcc ttg ttt act tgt tcc att gtt gaa gat 288
Tyr Val Leu Ala Ser Tyr Ser Leu Phe Thr Cys Ser Ile Val Glu Asp
85 90 95

gaa aaa aat aat ggg ggc caa aaa aga gtg tat ggt ttg tca caa gtg 336
Glu Lys Asn Asn Gly Gly Gln Lys Arg Val Tyr Gly Leu Ser Gln Val
100 105 110

gga aaa ttc ttt gtt aaa aat gaa aat ggt gca tca atg ggg cca ctt 384
Gly Lys Phe Phe Val Lys Asn Glu Asn Gly Ala Ser Met Gly Pro Leu
115 120 125

ttg gct ttg ctt caa aat aaa gta ttc ata aac agc tgg ttt gaa cta 432

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| | | | | | | | | | | | | | | | | | |
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| Leu | Ala | Leu | Leu | Gln | Asn | Lys | Val | Phe | Ile | Asn | Ser | Trp | Phe | Glu | Leu | | |
| 130 | | | | | | 135 | | | | | 140 | | | | | | |
| aaa | gat | gca | gtt | ctt | gaa | gga | gga | gtt | cca | ttt | gac | agg | gta | cac | ggg | 480 | |
| Lys | Asp | Ala | Val | Leu | Glu | Gly | Gly | Val | Pro | Phe | Asp | Arg | Val | His | Gly | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| gtg | cat | gca | ttt | gaa | tat | cca | aaa | tcg | gac | cca | aaa | ttc | aat | gat | gtt | 528 | |
| Val | His | Ala | Phe | Glu | Tyr | Pro | Lys | Ser | Asp | Pro | Lys | Phe | Asn | Asp | Val | | |
| | | | | 165 | | | | | 170 | | | | | | 175 | | |
| ttc | aac | aag | gca | atg | atc | aat | cac | aca | act | gta | gtc | atg | aaa | aaa | ata | 576 | |
| Phe | Asn | Lys | Ala | Met | Ile | Asn | His | Thr | Thr | Val | Val | Met | Lys | Lys | Ile | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| ctt | gaa | aat | tac | aaa | ggg | ttt | gag | aac | ctt | aaa | act | ttg | gtt | gat | gtt | 624 | |
| Leu | Glu | Asn | Tyr | Lys | Gly | Phe | Glu | Asn | Leu | Lys | Thr | Leu | Val | Asp | Val | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| gga | ggg | ggg | ctt | gga | gtt | aac | ctc | aag | atg | att | aca | tct | aaa | tac | ccc | 672 | |
| Gly | Gly | Gly | Leu | Gly | Val | Asn | Leu | Lys | Met | Ile | Thr | Ser | Lys | Tyr | Pro | | |
| | | 210 | | | | 215 | | | | | 220 | | | | | | |
| aca | att | aag | ggc | act | aat | ttt | gat | ttg | cca | cat | gtt | gtt | caa | cat | gcc | 720 | |
| Thr | Ile | Lys | Gly | Thr | Asn | Phe | Asp | Leu | Pro | His | Val | Val | Gln | His | Ala | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| cct | tcc | tat | cct | ggg | gtg | gaa | cat | gtt | ggg | gga | gat | atg | ttt | gaa | agt | 768 | |
| Pro | Ser | Tyr | Pro | Gly | Val | Glu | His | Val | Gly | Gly | Asp | Met | Phe | Glu | Ser | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| gtt | cca | gaa | gga | gat | gct | att | ttt | atg | aag | tgg | att | ctt | cat | gac | tgg | 816 | |
| Val | Pro | Glu | Gly | Asp | Ala | Ile | Phe | Met | Lys | Trp | Ile | Leu | His | Asp | Trp | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| agt | gat | agt | cac | aac | ctc | aag | ttg | cta | aag | aac | tgc | tac | aag | gct | cta | 864 | |
| Ser | Asp | Ser | His | Asn | Leu | Lys | Leu | Leu | Lys | Asn | Cys | Tyr | Lys | Ala | Leu | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| cca | gac | aat | gga | aag | gtg | att | gtt | gtt | gag | gcc | att | tta | cca | gtg | aaa | 912 | |
| Pro | Asp | Asn | Gly | Lys | Val | Ile | Val | Val | Glu | Ala | Ile | Leu | Pro | Val | Lys | | |
| | | 290 | | | | 295 | | | | | 300 | | | | | | |
| cca | gac | att | gac | acc | gca | gtg | gtt | ggc | gtt | tcg | caa | tgt | gat | ttg | atc | 960 | |
| Pro | Asp | Ile | Asp | Thr | Ala | Val | Val | Gly | Val | Ser | Gln | Cys | Asp | Leu | Ile | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| atg | atg | gct | caa | aat | cct | gga | ggc | aaa | gag | cga | tcg | gaa | gag | gag | ttt | 1008 | |
| Met | Met | Ala | Gln | Asn | Pro | Gly | Gly | Lys | Glu | Arg | Ser | Glu | Glu | Glu | Phe | | |
| | | | | 325 | | | | | 330 | | | | | | 335 | | |
| cga | gcc | ttg | gct | act | gaa | gct | gga | ttc | aaa | ggc | gtt | aac | tta | ata | tgt | 1056 | |
| Arg | Ala | Leu | Ala | Thr | Glu | Ala | Gly | Phe | Lys | Gly | Val | Asn | Leu | Ile | Cys | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| tgt | gtc | tgt | aat | ttt | tgg | gtc | atg | gaa | ttc | tgc | aag | tag | | | | 1095 | |
| Cys | Val | Cys | Asn | Phe | Trp | Val | Met | Glu | Phe | Cys | Lys | * | | | | | |

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic Oligonucleotide No. 1

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<210> 5
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<220>
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<210> 7
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 <212> DNA
 <213> Artificial Sequence

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<210> 8
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<210> 9
 <211> 24
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 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide No. PS2

 <400> 9
 tgtttggtgt tatgcttccg tcct 24

 <210> 10
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide No. PS3

 <400> 10
 aaaaagcttt tttaggatgg agtacagcc 29

 <210> 11
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide No. PS4

 <400> 11
 tttaagctta aagagaacca gacaatatt 29

 <210> 12
 <211> 354
 <212> DNA
 <213> Phytophthora megasperma

 <220>
 <221> CDS
 <222> (1)...(354)

 <221> CDS
 <222> (1)...(60)
 <223> Preprotein

 <400> 12
 atg aac ttc acc gct ctg ctc gct gcc gtc gcc gcc gcc ttg gtc gga 48
 Met Asn Phe Thr Ala Leu Leu Ala Ala Val Ala Ala Ala Leu Val Gly
 1 5 10 15

 tct gcc aac gcc acc gcg tgc acc gcc acc cag cag acc gct gcg tac 96
 Ser Ala Asn Ala Thr Ala Cys Thr Ala Thr Gln Gln Thr Ala Ala Tyr
 20 25 30

 aag aca ctc gtg agc atc ctg tcg gac gcg tcg ttc aac aag tgc tct 144

| | |
|---|-----|
| Lys Thr Leu Val Ser Ile Leu Ser Asp Ala Ser Phe Asn Lys Cys Ser | |
| 35 40 45 | |
| acg gat tcg ggc tac tcc atg ctg acg gcc aag gcc ctc ccc acc acg | 192 |
| Thr Asp Ser Gly Tyr Ser Met Leu Thr Ala Lys Ala Leu Pro Thr Thr | |
| 50 55 60 | |
| gcg cag tac aag ctc atg tgc gcg tcc acg gca tgc aac acc atg atc | 240 |
| Ala Gln Tyr Lys Leu Met Cys Ala Ser Thr Ala Cys Asn Thr Met Ile | |
| 65 70 75 80 | |
| aag aag atc gtg acg ctg aac ccg ccc aac tgc gac ctg acg gtg ccc | 288 |
| Lys Lys Ile Val Thr Leu Asn Pro Pro Asn Cys Asp Leu Thr Val Pro | |
| 85 90 95 | |
| acg agc ggc ctg gtg ctc aac gtg tac tcg tac gcg aac ggc ttc tcg | 336 |
| Thr Ser Gly Leu Val Leu Asn Val Tyr Ser Tyr Ala Asn Gly Phe Ser | |
| 100 105 110 | |
| gac aag tgc tcg tcg ctg | 354 |
| Asp Lys Cys Ser Ser Leu | |
| 115 | |

<210> 13
 <211> 294
 <212> DNA
 <213> Phytophthora megasperma

<220>
 <221> CDS
 <222> (1)...(294)

| | |
|---|-----|
| <400> 13 | |
| acc gcg tgc acc gcc acc cag cag acc gct gcg tac aag aca ctc gtg | 48 |
| Thr Ala Cys Thr Ala Thr Gln Gln Thr Ala Ala Tyr Lys Thr Leu Val | |
| 1 5 10 15 | |
| agc atc ctg tcg gac gcg tcg ttc aac aag tgc tct acg gat tcg ggc | 96 |
| Ser Ile Leu Ser Asp Ala Ser Phe Asn Lys Cys Ser Thr Asp Ser Gly | |
| 20 25 30 | |
| tac tcc atg ctg acg gcc aag gcc ctc ccc acc acg gcg cag tac aag | 144 |
| Tyr Ser Met Leu Thr Ala Lys Ala Leu Pro Thr Thr Ala Gln Tyr Lys | |
| 35 40 45 | |
| ctc atg tgc gcg tcc acg gca tgc aac acc atg atc aag aag atc gtg | 192 |
| Leu Met Cys Ala Ser Thr Ala Cys Asn Thr Met Ile Lys Lys Ile Val | |
| 50 55 60 | |
| acg ctg aac ccg ccc aac tgc gac ctg acg gtg ccc acg agc ggc ctg | 240 |
| Thr Leu Asn Pro Pro Asn Cys Asp Leu Thr Val Pro Thr Ser Gly Leu | |
| 65 70 75 80 | |
| gtg ctc aac gtg tac tcg tac gcg aac ggc ttc tcg gac aag tgc tcg | 288 |
| Val Leu Asn Val Tyr Ser Tyr Ala Asn Gly Phe Ser Asp Lys Cys Ser | |
| 85 90 95 | |

tcg ctg
Ser Leu

294

<210> 14
<211> 1620
<212> DNA
<213> Artificial Sequence

<220>
<221> promoter
<222> (1)...(1263)
<223> COMTII promoter

<221> CDS
<222> (1264)...(1620)
<223> CDS megaspermine

<223> Synthetic construct

<400> 14
cgtccacctg tgccaacaat atagagacaa tttgctcgta tagtcagaaa gagtgtttta 60
cttttttagtt gcttttttagt gaatctactc ggtataaagt taaatttagtg ggtcaataag 120
tcgggtgaat agttaaagaa aacagtgggt agtttagctg tcaaataatt tcttcttttt 180
cttgttttca cattagaaat caaaataaaa cacaagcttt ttgtatttat tttaacacaa 240
gctaattata tgtttatatg ctggtttagt gaagtaaagc atgttatatg aggaaagtac 300
gaagaaaatg tgccaattgt cgtgtacagc aaagcagcca gcacaagcaa attcgcactt 360
gataagtggc taagtccact ttctagtggg cctagtgggt cactaacttt taccaaaaag 420
gcaataattht gcaattcaaa aagaaaaaag gaaaaaagaa aactagacag actttaacac 480
accaactccc acaggaagca acaatgcaac tcacaaaagg aaaccgagtt tttccgcgac 540
ggatctagaa tttgggttca ttctttacgc tttttcgtat taaactcatt atatttgat 600
aattatgggt ttatattttt tatttattgt aatttttgta aaattttata tataagtgt 660
tactccacgt ctccggatc tacattagcc tctagggttc ttaatactct tggttaaattg 720
tccaggctcc aaacgcatgt tcgtttcaat tttaacggat gtttccgaac aactccaaat 780
gttcaatgtt aggtgtgttt ggtgttaagc ttccgtccta gggttaataga atagataatt 840
gttgtttctt atatagtttt gaacaatcgt cgccataaac taatttttag gatggaagct 900
aatttttagg atggagtaca gcctaagggt aaaatataac tataaaaaat atccataaaa 960
ggtgaaattht aattagtaac atgaaaagat aaaactagt ttatcgggtc aactttcaaa 1020
agagaaaagaa ataactagac aaacttcaac aaccaacctg cccaacatgc tactgtgcaa 1080
ttgaaaaata aacaaaagag aaccagacaa tatttcaacc aatattccat caagaaaacc 1140
aattatgaca attcttaacc aaagtcacaa ctaacactta taaaaagcac taactcaact 1200
gtacatgatt gtgaagccta acaaaaacac tctaaaaggc ctctagagga tccccggggt 1260
acc atg aac ttc acc gct ctg ctc gct gcc gtc gcc gcc gcc ttg gtc 1308
Met Asn Phe Thr Ala Leu Leu Ala Ala Val Ala Ala Ala Leu Val
1 5 10 15

gga tct gcc aac gcc acc gcg tgc acc gcc acc cag caa acc gct gcg 1356
Gly Ser Ala Asn Ala Thr Ala Cys Thr Ala Thr Gln Gln Thr Ala Ala
20 25 30

tac aaa aca ctc gtg agc atc ctg tcg gac gcg tcg ttc aac aag tgc 1404
Tyr Lys Thr Leu Val Ser Ile Leu Ser Asp Ala Ser Phe Asn Lys Cys
35 40 45

tct acg gat tcg ggc tac tcc atg ctg acg gcc aag gcc ctc ccc acc 1452

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Ser | Thr | Asp | Ser | Gly | Tyr | Ser | Met | Leu | Thr | Ala | Lys | Ala | Leu | Pro | Thr | |
| | | 50 | | | | | 55 | | | | | 60 | | | | |
| acg | gcg | cag | tac | aag | ctc | atg | tgc | gcg | tcc | acg | gca | tgc | aac | acc | atg | 1500 |
| Thr | Ala | Gln | Tyr | Lys | Leu | Met | Cys | Ala | Ser | Thr | Ala | Cys | Asn | Thr | Met | |
| | 65 | | | | | 70 | | | | 75 | | | | | | |
| atc | aaa | aaa | atc | gtg | acg | ctg | aac | ccg | ccc | aac | tgc | aac | ctg | acg | gtg | 1548 |
| Ile | Lys | Lys | Ile | Val | Thr | Leu | Asn | Pro | Pro | Asn | Cys | Asn | Leu | Thr | Val | |
| | 80 | | | | 85 | | | | 90 | | | | | 95 | | |
| ccc | acg | agc | ggc | ctg | gtg | ctc | aac | gtg | tac | tcg | tac | cca | aac | ggc | ttc | 1596 |
| Pro | Thr | Ser | Gly | Leu | Val | Leu | Asn | Val | Tyr | Ser | Tyr | Pro | Asn | Gly | Phe | |
| | | | 100 | | | | | 105 | | | | | | 110 | | |
| tcg | gac | aag | tgc | tcg | tcg | ctg | taa | | | | | | | | | 1620 |
| Ser | Asp | Lys | Cys | Ser | Ser | Leu | * | | | | | | | | | |
| | | | 115 | | | | | | | | | | | | | |

<210> 15
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic Oligonucleotide PAS2

| | |
|-------------------------------------|----|
| <400> 15 | |
| cgcggatccc cttttagagt gtttttgta ggc | 33 |

<210> 16
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic Oligonucleotide PS5

| | |
|---------------------------------------|----|
| <400> 16 | |
| acgcgtcgac gttagggaca atctatagtg tcac | 34 |

<210> 17
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic Oligonucleotide PS6

| | |
|---------------------------------------|----|
| <400> 17 | |
| acgcgtcgac gctccgagga tttggctgtc gcgg | 34 |

<210> 18
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic Oligonucleotide PS7

 <400> 18
 acgcgtcgac gctggtagg tgaagtaaag catg 34

 <210> 19
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide PS8

 <400> 19
 acgcgtcgac gcatgttata tgaggaaagt acg 33

 <210> 20
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide PS9

 <400> 20
 acgcgtcgac gcagccagca caagcaaatt cgc 33

 <210> 21
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide PS10

 <400> 21
 acgcgtcgac gactttaaca caccaactcc c 31

 <210> 22
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic Oligonucleotide PS11

 <400> 22
 acgcgtcgac cggatctaga atttgggttc attc 34

 <210> 23
 <211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>

<223> Synthetic Oligonucleotide PS12

<400> 23

acgcgtcgac gtgtatactc cacgtctccg gatac

35

<210> 24

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide PS13

<400> 24

acgcgtcgac gttcaatggt aggtgtgttt gg

32

<210> 25

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide PAS3

<400> 25

cgcggatccg cttaacacca aacacaccta acattg

36

<210> 26

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide PS14

<400> 26

acgcgtcgac cagtggtagg tttagctgtc

30